



MAGAZINE

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FRONT COVER: *Cambridge—The Cam, near St. John's, by J. Granville (Alkali Division).*

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A Safer Way to Make Explosives

By Harry Hutchison

I.C.I.'s latest plant for making nitroglycerine—the essential ingredient of commercial explosives—is probably the most up to date in the world, particularly from the safety point of view. Soon, when greater working experience has been gained, the plant will be remotely controlled by an operator who views the “interface” on a closed circuit television screen.

AT Nobel Division's Ardeer Factory, hillmen (as nitroglycerine processmen are called) control the transformation of glycerine into a powerful explosive—nitroglycerine—which is the basis for the commercial explosives so vital to British industry. The hill on which they work contains the buildings and chemical equipment needed to produce stable nitroglycerine.

An immaculately clean and orderly nitrating room, its floor covered with sheet lead, is the core of the system. On an upper platform are the stainless steel nitrating vessel and other strangely shaped apparatus; separator, leading-in pipes, valves, pressure gauges, thermometers, and three great cylindrical wash columns of gleaming glass. A mixture of sulphuric and nitric acids is fed to the bottom of the nitrator, and finely divided glycerine and acid come together and react instantly. In a continuous process of stirring, the emulsion of spent acid and nitroglycerine rises upwards through the tubes in a circular collar to the top of the nitrator. Brine circulates round the tubes to keep the temperature of the reaction under control.

The hillman surveys the range of pressure gauges and thermometers. Now and again after reading the

thermometers in the nitrator he may, for example, make an adjustment to the brine circulation valve.

Today, in the newest Ardeer plant for making nitroglycerine operating on the Biazzi system, there is a new method.

The hillman stands behind a desk, from which he surveys the complete operation recorded on dials. By movement of small levers or the turning of knobs, distant valves are pneumatically operated.

Dr. Mario Biazzi, the Swiss chemical engineer who in 1937 devised a new plant for continuous manufacture of nitroglycerine, has described the recent installation at Ardeer as the most advanced unit in the world. This is so because, in consultation with Nobel Division technical men, it has been designed for operation by remote control.

When experience of the present semi-remote control is fully gained the desk will be moved to a reinforced concrete building outside the mound which contains the production unit.

Along one wall the pattern of the Biazzi panel will be repeated with duplicate dials and gauges. These record the conditions of the process. Actual observation of critical phenomena such as the “interface” will be relayed to television screens in the remote

control room. Thus the operators will be completely removed from the vicinity of the manufacturing process.

This transfer will be made in the spring of next year.

Smooth Operation

The new plant first made nitroglycerine in February, and since then it has operated smoothly. It is designed to give an output of about 2500 lb. of nitroglycerine per hour. This production in terms of annual tonnage may seem small, but the true measure of the plant's importance is the quantity of work its product will accomplish. Nitroglycerine is the sensitising agent in most commercial explosives, those fundamental agents of power for doing the world's hard basic work of mining, quarrying, demolition and rock excavation. In typical explosive compositions such as are engaged for coal-winning, one hour's output of nitroglycerine from the Biazzi plant will ultimately blast down 40,000–50,000 tons of mineral.

The Biazzi system has a large stainless steel panel linked through controlling devices to the plant, which consists of a nitrating vessel, a separator, and three mechanically stirred washing vessels, connected one to the other in line.

New Method

The nitrating vessel of polished stainless steel holds some fifty gallons of liquid and carries several banks of cooling coils through which calcium chloride brine is circulated. The reaction temperature is thus held at 10° C.

Glycerine and mixed acid are fed to the nitrating vessel, and the liquids are kept in a state of great agitation by a specially designed stirrer which ensures that an intimate emulsion of nitroglycerine and refuse acid is maintained. Glycerine exists only for a fraction of a second before being converted into nitroglycerine.

An emulsion of nitroglycerine and refuse acid is continuously leaving the nitrator at an overflow at the top and entering the circular Biazzi separator. This emulsion runs into the separator in such a way that acidic nitroglycerine overflows to the first of three



OLD-STYLE nitroglycerine. This drawing shows what happened seventy years ago. The hillmen (as nitroglycerine processmen are called) watched the thermometers, and interpreting the rise and fall they controlled the process by adjusting simple valves.

washing vessels, in which it is neutralised with sodium carbonate solution and thus made suitable for commercial explosives manufacture.

An elaborate system of safety devices is fitted to reduce the effects of a mistake by the operator. His attention is attracted to irregular functioning in any part of the unit so that he can act in good time. Should the operator's intervention fail, automatic devices are set in action.

Before nitration can be started, a series of conditions must be established. If any of these conditions—which concern rates of flow, stirrer speeds, valve positions, pressures and temperatures—is not established, the glycerine feeding arm cannot be lowered into its operating position.

If abnormal conditions appear during nitration, a

red blinking lamp lights, a warning bell sounds, and a luminous inscription indicating the cause of the warning appears on a glass panel. Red signal lamps light when other conditions need correction, and green lamps also direct attention to other deviations from normal.

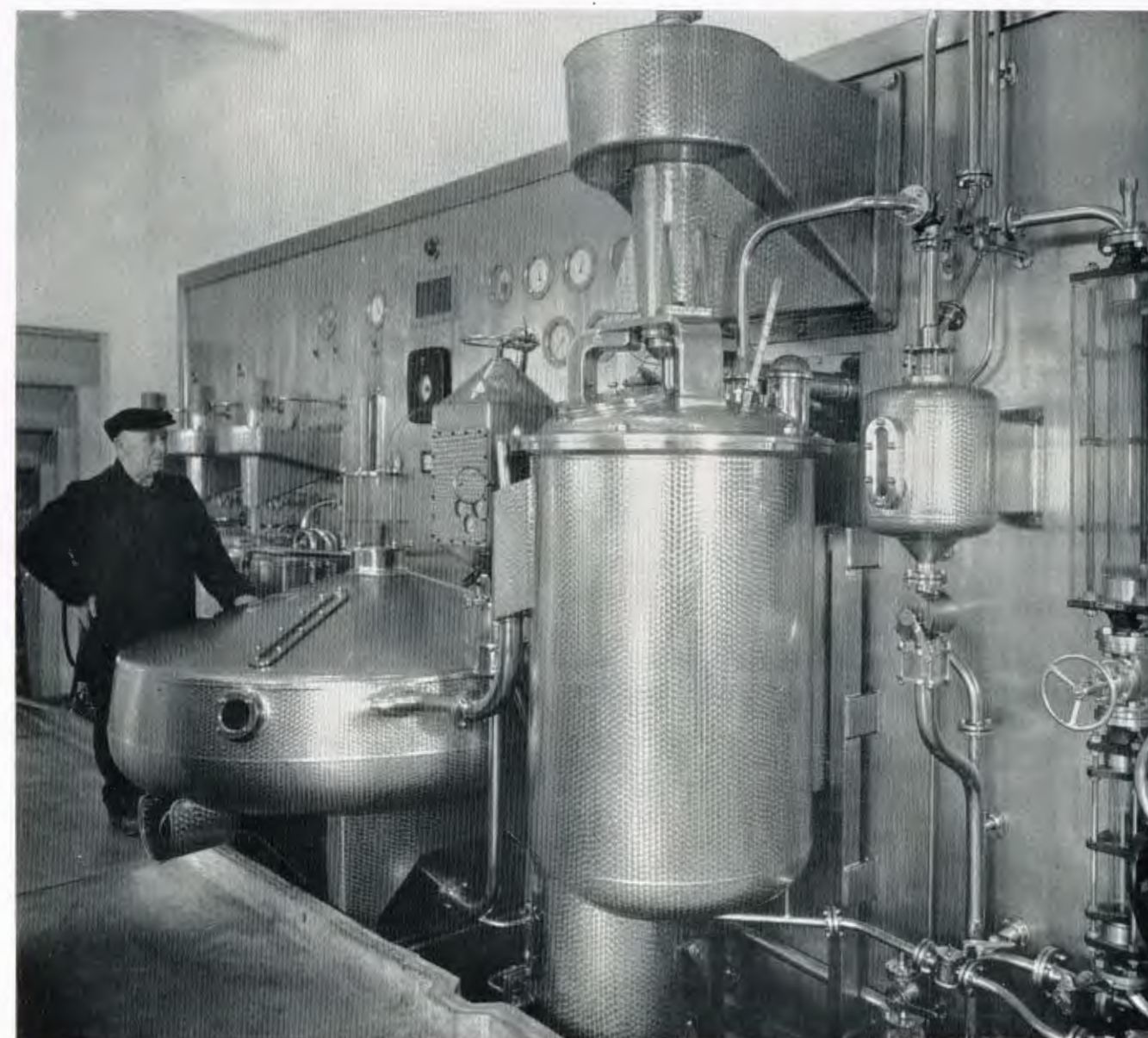
If any of ten different circumstances develop, the glycerine feed arm is automatically raised from the feeding position and both the mixed acids and glycerine pumps stop. Further devices automatically operate mechanism for drowning the charges from each vessel in water if the second limit of safety is reached.

The inherent safety of the plant is very great, and the advance to complete remote control will give still further security.

At present another Biazzi unit is planned for Ardeer and the site is being prepared. It also will be remote controlled, but to observe operation a high-grade optical system on the periscope principle will be employed instead of TV.

How different it was at the beginning of the nitroglycerine explosives industry when Alfred Nobel and his father first started manufacture on a commercial scale! In contrast to the gleaming stainless steel equipment of Ardeer's modern Biazzi unit, earthenware jugs and glass stirring rods were his plant.

It was thus that the Nobels, father and sons, first made nitroglycerine on a small commercial scale at Heleneborg, near Stockholm. Then, on 4th September, 1864, they suffered a perfunctory and tragic reminder that nitroglycerine was not completely



NEW-STYLE nitroglycerine. Here are the gleaming stainless steel vessels of the modern Biazzi plant. The hillman is on a visit of inspection. He operates the plant by remote control.

understood. An explosion wrecked their laboratory; Oscar Emil Nobel, the youngest son, and a chemist, Carl Erik Hartmann, were killed; and the father, Emmanuel Nobel, suffered a stroke from which he did not fully recover. The manufacture of nitroglycerine near dwellings was afterwards forbidden by the Swedish government.

Despite this misfortune, Nobel returned to his problem and, on a large barge moored in the Malärsee, he worked out the first batch process. He believed that if nitroglycerine could be absorbed in a solid

substance, it would become safe to carry, to store and to use. Gunpowder was tried as an absorbent for Nobel's Blasting Oil, without encouraging results. Many other substances, including fine sawdust, were also examined until Nobel found that kieselguhr (diatomite) would mop up three times its own weight of nitroglycerine to form a moist, crumbly paste which could readily be pressed into paper cylinders.

Thus dynamite came into being, and so the modern explosives industry, which accelerated the pace of the Industrial Revolution, began.

Crane Driver

A TRIP by helicopter would be no treat to Bill Harvey, who spends all his working days in a small cabin, sweeping gently back and forth at rooftop height.

Bill's job is to drive a crane—not one of those highly manoeuvrable affairs with long, elegant jibs that we see on building sites, but a 10-ton travelling crane, nearly 74 ft. wide, which spans a busy metal mill. This is in one of the bays in the Strip Mill at Kynoch Works, where slabs of copper or brass are rolled down into long, thin strips.

I first met Bill on terra firma. We stood looking down the long mill, flanked on either side by massive machinery and almost deafened by its ceaseless whine and clatter. Coils of yellow brass and rosy copper were everywhere—racing in a speed haze through the great steel rolls, stacked in serried ranks on storage arms, moving sedately along articulated runways in the floor.

Five minutes later we were viewing the scene from a very different angle. Still panting from my climb up an unfriendly vertical ladder, I sat by Bill's side in a tiny cabin near the roof of the mill, surrounded by an impressive array of levers and pedals, and glancing (rather cautiously, it must be admitted) through the airy grid which formed the floor. Alas for my nerves! Before I was really acclimatised, Bill flicked over a lever or two and we were moving ponderously forward like a flying hippopotamus.

It was not long before I discovered why we had to be able to see through the floor of the cabin. Bill moved another lever, and the cage containing the business end of the crane swung into position in front of us. Our view ahead was screened by a fat piston and all its surrounding gear, and only through the floor grating could we see the arm of the crane itself, fashioned like a nightmare-size hairpin.

Bill pressed the footbrake, and we came to a gentle halt. The hairpin dropped smoothly but swiftly earthwards and nosed its way unhesitatingly into the miniature tunnel made by six coils of copper waiting on a runway 30 ft. below. The arm (I was told I must learn to call it a beam) rose, revolved slickly on its axis and came to rest on the opposite side of the mill, where the six coils were deposited neatly along another runway ready for their next trip

through a rolling mill. The whole operation had taken perhaps three or four minutes.

For nearly an hour I watched variations on this theme, for Bill very obligingly put the crane through all its normal paces and a few parlour tricks as well. I saw that sometimes the load he had to move consisted not of half a dozen coils 25 in. wide, but of up to twenty coils only 6 in. wide. Here the inside diameter of the coils looked impossibly small, but even so there were no false starts—the crane beam slid into the narrow aperture as surely as candy finding its way into a toddler's mouth.

Occasionally, like a dentist changing his instrument, Bill put the rigid beam on one side and used other types of lifting gear—huge curved grabs, a flexible rubber sling or a massive hook. Generally these were called into service when the crane and its driver were doing a non-routine job. For instance, some building operations were in progress in one part of the mill and a stack of heavy steel plates needed moving. So a team of men on the ground lashed them round with steel rope, looped this on to Bill's hook and signalled "Take it away!" In a minute or so the plates were resting safely on a lorry parked in the gangway.

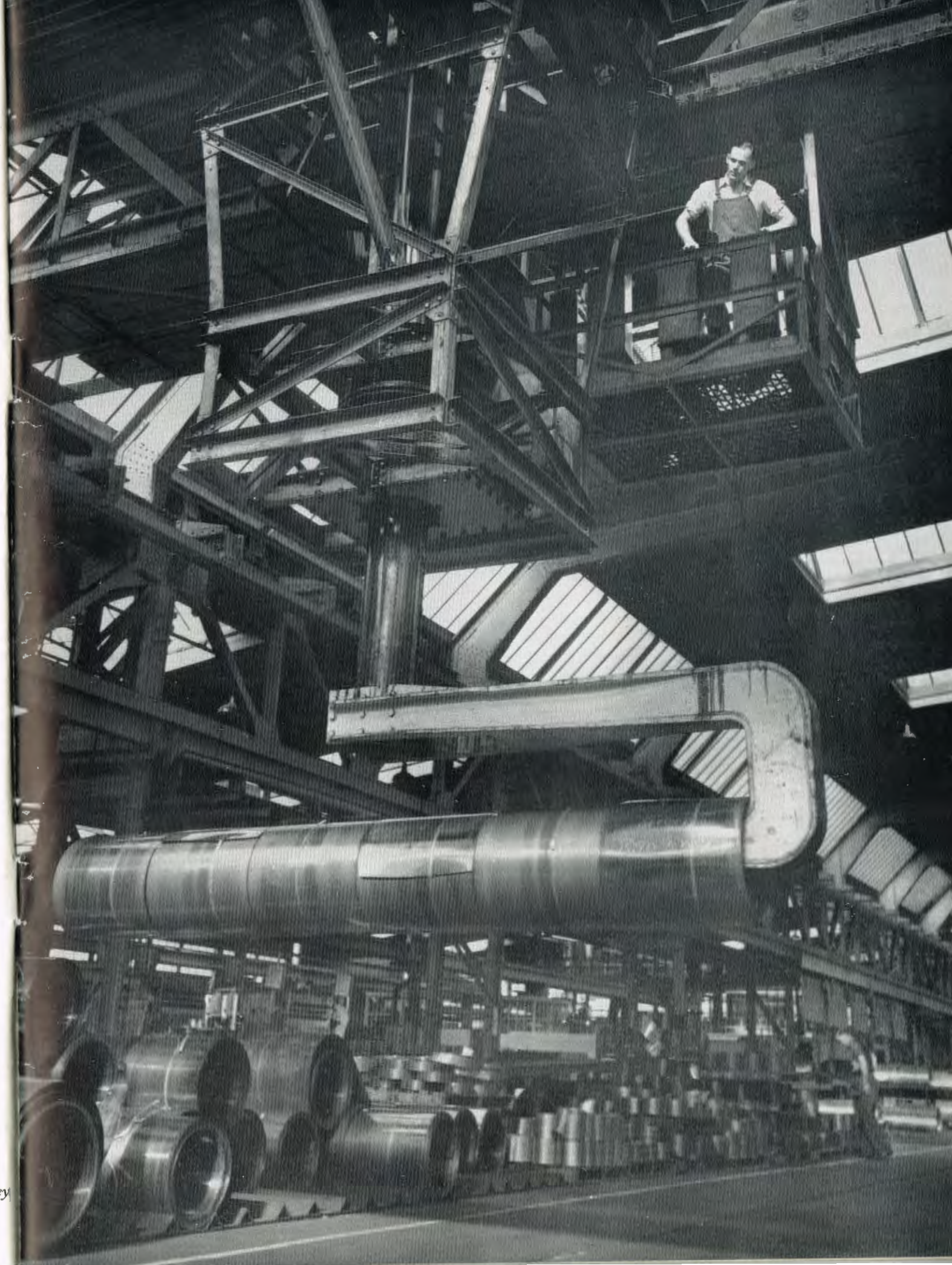
It is only on rare occasions like this that Bill has any help—other than a "thumbs up" sign, perhaps—from his colleagues on the ground. The rest of the time he relies solely on his own knowledge and judgment to keep the coils moving and the machines fed. Like most experts, he is modest about his skill and unawed by his responsibilities. These are, in fact, exacting—not only because the equipment and materials he handles are valuable, but because the efficient flow of work through the mill depends to quite a high degree on the crane drivers.

But of course Bill has plenty of experience behind him, for he has been a crane driver all his working life. Even when his 19 years' service with I.C.I. was interrupted by the war he found himself still driving a crane—this time in a Suez dockyard.

I asked him if he did not find this essentially one-man job rather lonely. "Well, not really," he said; "there's so much variety that I don't have time to get miserable. But when I'm at home I do get accused of only talking sign language!"

D.B.T.

Bill Harvey



I 9 2 6

Just thirty years ago the giant merger which made I.C.I. took place.
What sort of a year was it? Was England a very different place then?

IT was thirty years ago, on 7th December 1926, that I.C.I. was formed from a merger of four companies—Brunner Mond & Co. Ltd., The United Alkali Co. Ltd., British Dyestuffs Corporation Ltd. and Nobel Industries Ltd.—after talks which had gone on between the leaders for the greater part of 1926.

What sort of a year had it been for the rest of the country? It started off in the usual way, with extensive flood damage caused by a series of wild storms that broke loose all over Europe. In early January half of Holland was under water, the Thames was in flood, and the Seine rose alarmingly.

On the political front Mr. Baldwin's second Conservative Ministry, with Mr. Winston Churchill as Chancellor of the Exchequer and Sir Austen Chamberlain as Foreign Secretary, was in power. Mr. Ramsay MacDonald, Mr. Thomas and Mr. Lloyd George were the chief Opposition leaders. Britain's foreign position was good. She was still enjoying the prestige of the Locarno Treaties, and the friction in which she had become involved with Turkey by accepting a reserved mandate over Iraq was being smoothed out. With Russia her relations were neither more nor less strained than they had been since the Conservative Government took office in 1924. With all other countries relations were excellent.

It was on the home front that trouble loomed dangerously. On 25th January there were 1,200,827 registered unemployed, and a stoppage in the coal industry which had been averted five months earlier threatened to begin again if some agreement between the miners and the coal-owners could not be reached by the end of April.

In the meantime, however, life went on. The London Fire Brigade celebrated its 60th anniversary. In New York the Gutenberg Bible was sold for \$106,000,

the highest sum ever paid up to then for a book. On 6th March the Shakespeare Memorial Theatre at Stratford-on-Avon was burnt down, and on the next day the first radio-telephone conversation took place between London and New York. It is interesting to note that in September this year, thirty years later, the first direct telephone call between London and New York was made, thanks in large part to I.C.I.'s 'Alkathene' insulator used in the transatlantic cables. There was a lot of long-distance pioneer flying by private people at that time; and on 13th March Mr. Alan Cobham returned to England after a 16,000-mile flight from London to Cape Town and back and was received by King George V at Buckingham Palace; while on 27th March Cambridge won the Boat Race by five lengths.

On 29th March the General Post Office announced a new type of parcel delivery—the Inland Cash on Delivery Parcel service, or C.O.D. for short.

April started quietly, with a correspondent to

The Times writing from Haywards Heath to inform the world that he had just seen a swallow. This must have been the swallow that did not make the summer, for the month turned out to be wet and cold. It was a significant month, however, for on 21st April the then Duchess of York gave birth to a daughter, who was christened Elizabeth Alexandra Mary, and who, although no one at the time foresaw it, was to become Queen Elizabeth II.

In the world of sport Bolton Wanderers beat Manchester City in the Final of the F.A. Cup on the 24th, while on the home front negotiations between the miners and the coal-owners were breaking down and the T.U.C. was preparing to call out the first general strike in the history of this country.

It started on 4th May and was called off on 12th May. Those who remember it will have their own memories of it, and those who do not remember it can read about it in the history books. After it was over, the coal strike which had set it off dragged on and on



KING OF THE AIR. Alan Cobham flies in over Westminster Bridge on his return flight from Australia. No prizes awarded for guessing his time of arrival!



QUEEN OF THE WAVES. 18-year-old American swimmer Gertrude Ederle is crowned Queen of the Waves in New York after successfully swimming the Channel in 14½ hours. The gentleman on the left wearing a black moustache is no relation to Adolf Hitler.



CAP GRIZ NEZ, early morning. Watched by a few shivering onlookers and a hungry dog, Gertrude is greased up against the intense cold of the English Channel . . .



. . . and strides resolutely out through the chilly mist for the White Cliffs of Dover.

with disastrous consequences to the export trade and to everyone concerned.

June arrived and with it the Derby, which Lord Woolavington's Coronach, ridden by J. Childs, won by five lengths. Like the Derbys of the two previous years, it rained, the only difference being that it rained a bit harder in the 1926 Derby than on the two previous ones.

On the last day of the month Mr. Alan Cobham, now rested from his flight to South Africa and back, set off again, this time for Australia.

July came in with a typical English summer not unlike the one we have just enjoyed; and on 18th July great wind storms, believed to have been the worst for many years, swept across the whole of the British Isles, bringing with them deluges of rain and hail. And, mark you, there were no hydrogen or atom bombs to blame!

With August, as with all Augusts, came the attempts by hardy swimmers from all countries to swim the Channel. The 1926 August is famous for the fact

that Miss Gertrude Ederle from New York became at the age of 18 the first woman ever to swim the Channel; while on 18th August, to the relief of the M.C.C. and cricket enthusiasts in this country, England won the Final Test Match at the Oval by 289 runs, thus regaining the Ashes from Australia for the first time since 1921.

September started in the usual way, with a great rain-storm breaking over London and flooding out houses and schools, but it improved as it went along. On the 19th, the hottest day of the year, 88° in London was registered, and by the end of the month, as if to make up for the wet summer, it turned in a mean monthly temperature of 61°, which was 3° above normal.

The only important event of the month appears to have been the opening of the extensions of the City and South London Railway from Clapham to Morden, and of the London Electric Railway from Charing Cross to Kennington. Lt. Col. J. T. C. Moore-Brabazon (now Lord Brabazon), who was then Parliamentary Secretary to the Ministry of Transport, piloted the first train to Morden.

On 1st October Mr. Alan Cobham, who, if you remember, left England on 30th June, returned cheerfully to this country after a 28,000-mile flight to Australia and back. The King conferred a K.C.B.E. on him on the 6th.

On 1st November a severe blow to sportsmen occurred when the Betting Tax came into operation, an event that may or may not have accounted for the fact that the November rainfall for 1926 was the heaviest since 1852.

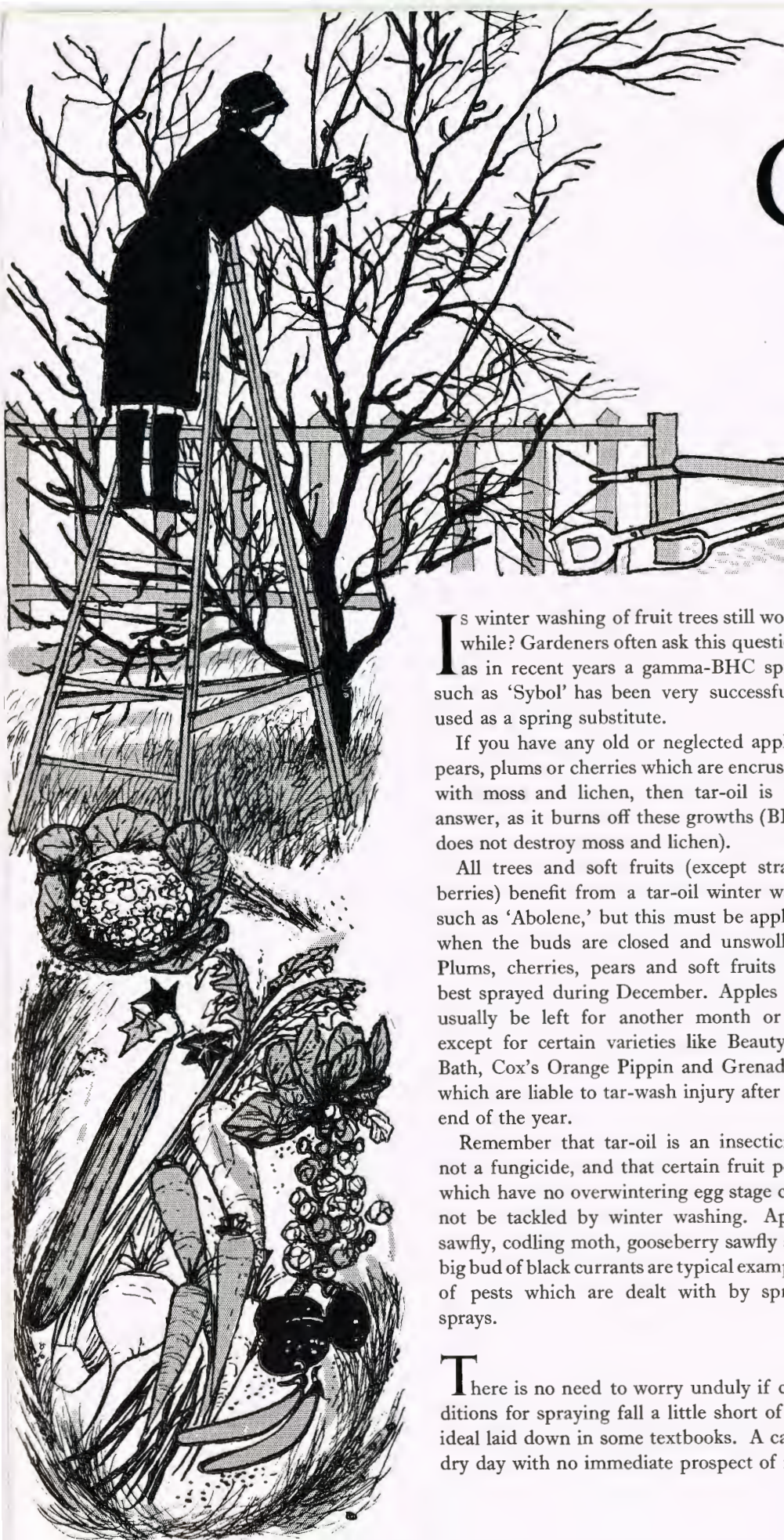
And so we come at last to December, when the new company which Lord Melchett and Lord McGowan



KING GEORGE V shaking hands with the victorious Bolton Wanderers team before the match with Manchester City in the F.A. Cup Final at Wembley

had been discussing all through this wet summer came into existence. It was a cheerless month. Unemployment figures rose with a depressing steadiness to reach 1,351,000 by the end of the month. The General Strike was over, but not its effects. There was less sunshine recorded than ever before, and the rainfall was 3% heavier than normal.

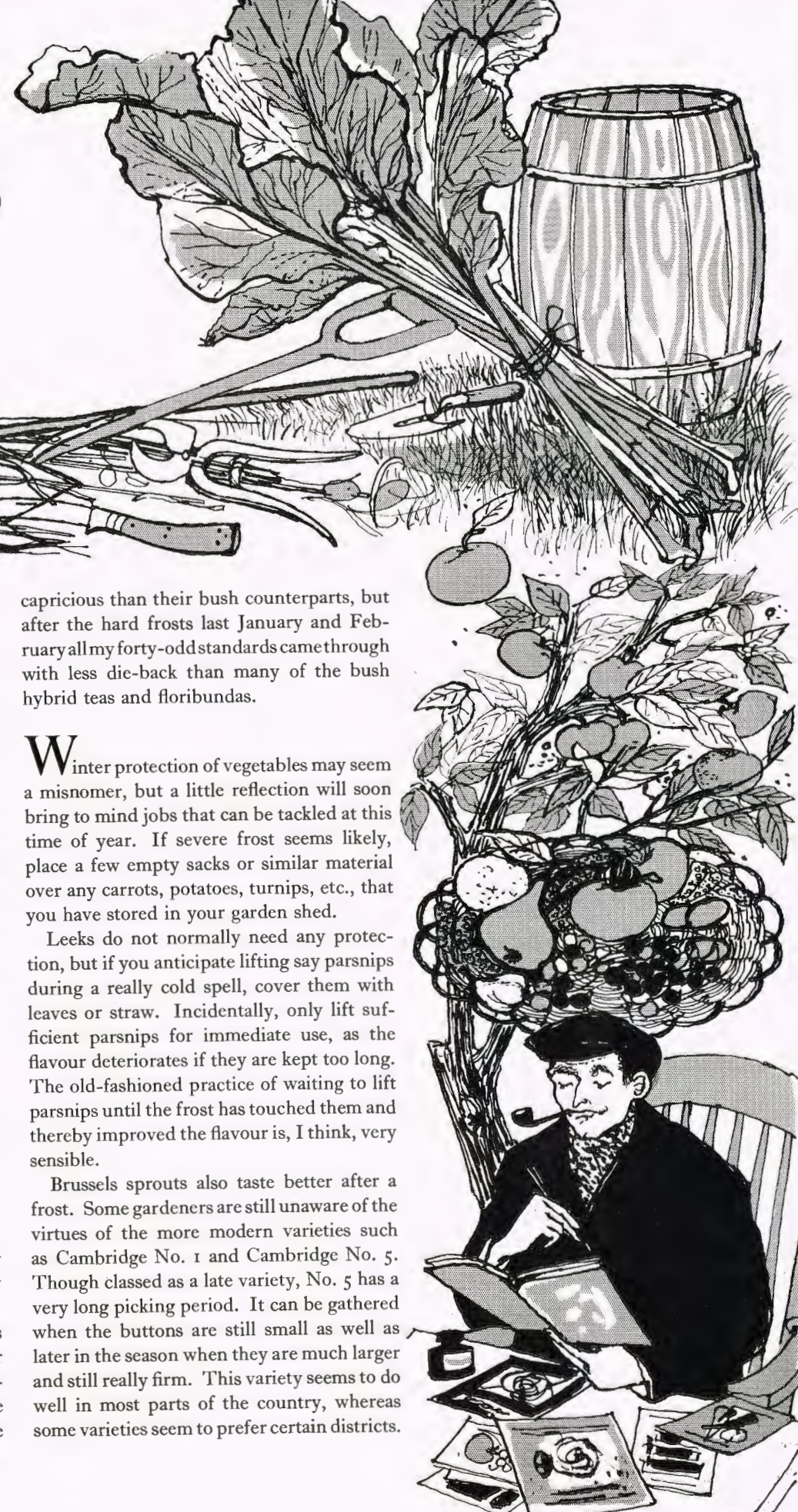
Such was 1926. In that grey and dismal month in which it ended, the formation of I.C.I. was one of the few pointers to a brighter future. Today, thirty years later, whatever the weather may have been, we in I.C.I. say with one voice as the anniversary comes round: "Many Happy Returns of the Day!"



Garden Notes

By Philip Harvey

Illustrated by Susan Einzig



Is winter washing of fruit trees still worth while? Gardeners often ask this question, as in recent years a gamma-BHC spray such as 'Sybol' has been very successfully used as a spring substitute.

If you have any old or neglected apples, pears, plums or cherries which are encrusted with moss and lichen, then tar-oil is the answer, as it burns off these growths (BHC does not destroy moss and lichen).

All trees and soft fruits (except strawberries) benefit from a tar-oil winter wash such as 'Abolene,' but this must be applied when the buds are closed and unswollen. Plums, cherries, pears and soft fruits are best sprayed during December. Apples can usually be left for another month or so except for certain varieties like Beauty of Bath, Cox's Orange Pippin and Grenadier, which are liable to tar-wash injury after the end of the year.

Remember that tar-oil is an insecticide, not a fungicide, and that certain fruit pests which have no overwintering egg stage cannot be tackled by winter washing. Apple sawfly, codling moth, gooseberry sawfly and big bud of black currants are typical examples of pests which are dealt with by spring sprays.

There is no need to worry unduly if conditions for spraying fall a little short of the ideal laid down in some textbooks. A calm, dry day with no immediate prospect of rain

or frost is often recommended, but the spray usually dries on the tree by the following day (if not before), and rain or frost are then of no account. Obviously spraying on a wet or frosty day is useless, similarly during a high wind or gale; a slight wind will, however, help to direct the spray to the topmost branches of tall trees.

When planting new fruit trees and bushes it is a good plan to dip them in a 5% solution of tar-oil wash. The roots are, however, liable to injury and should not be dipped.

Be sure to complete all winter pruning before you start winter washing, otherwise you will be spraying some material intended to be removed, which is, of course, wasteful.

Nowadays really severe weather, including hard frosts and heavy falls of snow, seldom arrives before the New Year. Nevertheless it is always worth while considering protection for any less hardy plants before trouble starts.

Generally speaking, excessive wet causes more losses among plants than hard frosts, hence the importance of keeping herbaceous and alpine subjects as dry as possible. Plants which fail to survive the winter in areas of high rainfall such as eastern Scotland will come unscathed through decidedly colder winters in drier areas.

Continuous wet weather in late summer and early autumn produces soft growth and may cause subsequent losses. You can protect growths from excessive damp by small

panes of glass secured by galvanised wire clips. Alpines with woolly leaves are always liable to rot if water lodges in the crowns.

Certain hardy perennials do not always winter well, especially on heavy wet land, consequently nurserymen often refuse to sell them in autumn, insisting on early spring deliveries. On light, sandy soils the borderline subjects will frequently survive the winter, but the nurseryman cannot afford to take chances and winters such plants in frames.

Here are some examples of herbaceous plants which are best planted from late February onwards: *Anemone japonica*, *Anthemis*, *Chrysanthemum maximum* varieties like Esther Read, Wirral Pride and Wirral Supreme, *Gaillardias*, *Gypsophila*, *Heliopsis*, *Kniphofias*, *Liatris*, *Pyrethrums* and *Scabious*.

I am sometimes asked if roses need winter protection. In the northern States of the U.S.A., where zero temperatures are fairly common, it is customary to hill or earth up the lower portions of the trees so that they are completely covered with soil (earthing up potatoes is a similar technique). In the British Isles protection of any kind is rarely necessary, as zero temperatures are unlikely in most winters.

Some people argue that standards are less hardy than bush roses and that straw or bracken worked in among the branches prevents the head dying back after very severe weather. It is true that standards are more

capricious than their bush counterparts, but after the hard frosts last January and February all my forty-odd standards came through with less die-back than many of the bush hybrid teas and floribundas.

Winter protection of vegetables may seem a misnomer, but a little reflection will soon bring to mind jobs that can be tackled at this time of year. If severe frost seems likely, place a few empty sacks or similar material over any carrots, potatoes, turnips, etc., that you have stored in your garden shed.

Leeks do not normally need any protection, but if you anticipate lifting say parsnips during a really cold spell, cover them with leaves or straw. Incidentally, only lift sufficient parsnips for immediate use, as the flavour deteriorates if they are kept too long. The old-fashioned practice of waiting to lift parsnips until the frost has touched them and thereby improved the flavour is, I think, very sensible.

Brussels sprouts also taste better after a frost. Some gardeners are still unaware of the virtues of the more modern varieties such as Cambridge No. 1 and Cambridge No. 5. Though classed as a late variety, No. 5 has a very long picking period. It can be gathered when the buttons are still small as well as later in the season when they are much larger and still really firm. This variety seems to do well in most parts of the country, whereas some varieties seem to prefer certain districts.

Gardens from a Wilderness

By William Dale

Out of waste places and refuse dumps Alkali Division has created gardens. Where so much was once drab can now be seen in summer a riot of colour.

THE site on the inter-works road had been an eyesore for years. I remember passing it soon after I started at Winnington in 1949. There it lay, dreary and depressing; half an acre of old corrugated sheets, broken bottles and cinders sprawling down to the railway siding as if in silent mockery of the notice that said "No more tipping."

Small wonder that the works manager ordered that something should be done about it. We cleared the debris and brought in a thousand tons of newly bulldozed good soil. Soon the gardens began to take shape.

Today outsiders go specially to take a look, and employees like to walk past during their lunch break



ONCE THE SCARRED FOUNDATIONS OF OBSOLETE PLANT, this corner of Lostock Works was transformed three years ago by bulldozer and skilful gardening into an attractive lawn edged by beds of mesembryantheums and antirrhinums

to get a sight of the galaxy of colour that steals the attention from the sombre background of the works, the wharf, the offices and the railway sidings.

It was early in 1953 that one of the gardeners engaged on the transformation was asked casually by a passing shiftman what he was doing. "Oh, something for the Coronation," came the stock reply of those days. Thus did the bright tiers of flower beds that now occupy the site come to be known as the Coronation Gardens.

The making of the Coronation Gardens was but one step, albeit an important one, in Alkali Division's policy of beautifying odd patches of waste ground. Neat gardens encourage tidiness. At the same time they interest a lot of people. Nearly all of us have some sort of a garden at home in which we like to potter. At Winnington it was found necessary to anticipate questions by marking flower beds with labels naming the plants.

What sort of flowers will grow in gardens situated in the heart of a heavy chemical industry? In my opinion, any—with the possible exception of salvias. These, despite our repeated attempts, still refuse to flourish alongside the tall chimneys.

Nevertheless there are difficulties, and care and attention is needed to suit the requirements of particular kinds of plant. One of the difficulties is the rapid deterioration of the physical condition of the soil. This we have countered by the provision of humus in the form of natural manure from a Company-owned farm at Middlewich and by large quantities of I.C.I. inorganic fertilizers.



A FINE DISPLAY OF COLOUR—marigolds, antirrhinums, geraniums, blue lobelia and white alyssum—at an entrance to Winnington Works, Alkali Division. Five years ago these borders were grass plots, over which people used to walk from the buses on their way to work.

Another factor is the high alkalinity of the soil around the works. A reading of the pH value of the natural soil here would show over 7, whereas a large range of garden plants and shrubs require a pH of between 5.5 and 6.5. Farmyard manure and sulphate of ammonia are used to counter this.



SOME SPLENDID ANTIRRHINUMS at a railway siding of Winnington Works. Four years ago this site was a desolate waste of rubble.

For the rhododendrons a supply of peat is readily available from a natural source at the Holford brine-fields. Hydrangeas too are being developed in the rhododendron borders. Begonias are difficult to grow, and for some time at Winnington it has been our practice to develop them fully in the greenhouse before planting out.

aerate the soil beneath and to prevent mat formation. Clover and coarse grass are kept severely in check with a springbok rake.

An important part of our work is providing plants for indoor decoration. Flowers are required for various Divisional functions like long service award presentations, sportsmen's evenings, annual dinners, gala

The bedding plants are nurtured in the group of greenhouses that constitutes our propagating centre, where, forty feet away, looms the stark presence of the Caustic Plant. From these greenhouses are provided 125,000 half-hardy annuals for the summer display—petunias, antirrhinums, lobelias, alyssum, phlox drum-mundi, geraniums, dahlias and pyrethrums. For spring there are 60,000 daffodil, narcissus, tulip and crocus bulbs, and for the bleaker months winter-flowering pansies are tending to replace wallflowers, which are more likely to suffer from the frost.

With several bowling greens under our care we have had to master the art of cultivating good lawns in spite of the high alkalinity. Actually the lawns receive three dressings a year of inorganic fertilizer including a good proportion of sulphate of ammonia—roughly one ounce per square yard in May and half an ounce per square yard in July and August, depending on weather conditions—and a generous top dressing of loam in late autumn. In addition we give the lawns a great deal of mechanical treatment, pruning the roots with the slitting machine and carrying out hollow and solid tining to

displays, and so on. There are ledge boxes to be replenished regularly in the canteens at Winnington, Wallerscote and Avenue Works. An acre of ground has recently been taken over as a nursery for cut flowers that are to be used for table displays in the canteens.

Another new venture, and one by which we hope to save a good deal of time at present spent on bedding out half-hardy annuals, is rose-budding on a large scale. Already we have had sufficient success with roses to indicate that the old belief that roses will only flourish in stiff land is something of a fallacy. Roses in fact prove very adaptable. Next year we shall be acquiring a thousand briar stocks for budding hybrid teas and florabundas.

Of course, every rose grower has his own ideas; but the treatment we have found successful in the conditions at Winnington has been an application of hoof and horn meal or bone meal in the autumn, followed in the spring with my own mixture of sulphate of ammonia, dried blood, bone meal and sulphate of iron. This last, however, can be dangerous if used in too large quantities. At Winnington we never give it in proportion greater than one-fifth of an ounce per square yard. Then, at the end of June, a good mulch of farmyard manure is provided. Pruning is a controversial point with rose growers. I prefer the medium and long pruning to the "cruel-to-be-kind" school of hard pruning after the first year. I believe it has resulted in more blooms without any marked deterioration of quality.

The Alkali Division's works gardens owe their successful development to the enthusiasm of many people in the Division,

from the Division chairman downwards. A good proportion of the gardening staff are women. Apart from one or two supervisors, most of the gardeners have been trained entirely at Winnington after showing a keenness and aptitude for gardening.

It was for these men and women who have worked so conscientiously that I was particularly pleased that our efforts met with success at the flower shows at Shrewsbury and Southport, which the Division entered this year for the first time. We were awarded a prize in each of the five classes we entered at Shrewsbury (one second, three thirds and one fourth), and we won a first and second respectively in the two classes we entered at Southport shortly afterwards.

Of our flowers we might say with Isaiah:

The wilderness and the solitary place shall be glad for them; and the desert shall rejoice, and blossom as the rose.



OTHER DIVISIONS, too, have gardens. This picture shows roses and lavender growing outside Plastics Division's new sales building at Welwyn.

The Fall

By K. D. Wadsworth

The deep reds of autumn colouring in Canada and New England are quite different from our British autumn colours. Why should this be? Here a scientist explains the secret behind one of nature's most striking displays.

ONE of England's greatest charms is the mellow, pastel tints of the autumn foliage. But the same changes in the trees and shrubs in the New England area of America produce a riot of vivid colours which have to be seen to be believed.

The colours are so brilliant that were the season not autumn it would need close scrutiny to convince oneself that they are indeed those of leaves and not of flower or blossom. There is practically every conceivable colour and shade, from the yellows and oranges to innumerable varieties of reds and the deepest purples. Vermilion, scarlet, crimson, flame, cherry, rust, bronze, magenta, puce, mauve—all abound in this lavish display during the season of the Fall.

I arrived in the United States towards the end of September and spent a week-end in early October with friends in Connecticut, travelling up from New York during the Friday evening to Hartford, the insurance centre of America. From here my friend drove me through the darkness

to his home, so that until the next morning, when I drew the bedroom curtains, I had no idea of the wonderland of colour which is New England in the autumn and which quite literally took my breath away.

I was lucky enough to be in New England during almost perfect autumn weather. So I made an attempt to photograph the scene in colour, and the illustration on this page is only one of more than twenty photographs taken during an hour's tour of the countryside around the small university town of Storrs.

It is perhaps natural to wonder why these autumn colours should be so much more spectacular than those in this country.

The development of autumn colours marks the third and last stage of the annual growth cycle of the leaf, the first being in the spring when it is building itself,



Autumn foliage in New England, near Storrs, Connecticut. The red tree on the right is probably a maple.

and the second in the summer when it is manufacturing food for the rest of the plant. Coloration is a sign of the approaching death of the leaf and is connected with the removal of the substances which will be valuable in restarting new growth of the plant in the following spring.

The most important function of a leaf is to build up—from carbon dioxide absorbed from the air, and from water and nitrates from the soil—the sugars, starches and protein of which the plant is constructed and which it needs for its growth. The green colouring matter of the leaves, called chlorophyll, plays an

essential part in these processes by absorbing from sunlight the necessary energy.

During the summer the protein and starches are removed from the leaf as rapidly as they are formed and the leaf shows little overall change. But when the cold weather of autumn arrives, the building up of starch and protein (through the sugars as intermediates) becomes slower and the removal of these products from the leaf also slows down. The conversion of the starch back to sugars, however, is hardly affected by the lower temperatures, so that sugars accumulate in the leaf.

The sugars concerned are fairly closely related in chemical constitution and structure to the vividly coloured substances called anthocyanins which are responsible for the colours of most flowers. When the amount of sugars in the leaf become high enough, a part of them is converted into such anthocyanins. Some of these anthocyanins are red, others yellow and others blue. The proportions of each produced, and hence the resultant colour of the leaf, depend on the types of sugar and on the relative amounts of each type synthesised by the tree. These vary from one variety of tree to another and with the weather. Those trees in which the leaf sugar accumulation reaches high enough levels may show colours varying from orange to red and purple—colours usually found only in flowers and blossom.

Autumnal Yellows

The autumnal yellows and browns, with which we are most familiar in this country, are due to other pigments. The yellows are the colours of the xanthophylls and carotenes, the former being also responsible for the colour of the daffodil and the latter for that of carrot roots. These substances are always present in the leaf, but their colours only become apparent when no longer obscured by the greens of the chlorophyll, which, as growth ceases, decays to less highly coloured substances. The browns, the final leaf colours, are those of the materials produced when the yellow and green pigments die and are the result of post-mortem oxidations similar to those which occur when a cut slice of apple or potato is exposed to the air.

Sugar Secretions

One reason for the more vivid autumn colours of New England is that the varieties of the trees predominating there are those which normally secrete larger amounts of sugar. Outstanding is the sugar maple (*Acer saccharum*), native to the U.S.A. and Canada, where in some places its trunk is tapped and the sap collected and evaporated to provide maple sugar. It is also valued as a source of hardwood—in the trade it is often called rock maple.

Other trees and shrubs which accumulate abnormally high amounts of sugar and show colours as vivid as those of the sugar maple are the American red oak (*Quercus coccinea*)—sometimes seen in Britain—the Japanese wax tree (*Rhus succedanea*), varieties of *Euonymus* such as *alatus* and *latifolius*, the broad-leaved spindle and the wild service (*Sorbus torminalis*), which has lobed leaves like the maple and was at one time called the maple tree. Even in summer, plants of this type can sometimes show the more intense colours of autumn, usually as a result of drought or nitrogen starvation. Outstanding examples are various maples and the “burning bush” (*Rhus cotinus folius purpureus*).

Indian Summer

The production of the vividly coloured *anthocyanins* is also favoured by the bright days and frosty nights of the “Indian summer” conditions normal during the autumn months in North America and particularly in New England. Later in my visit I saw the autumn foliage in Pennsylvania and Kentucky in the last weeks of October, and in New York State in mid-November; but their colours were much less spectacular and very like those in Britain.

Incidentally, the sugar maple gives much larger yields of sugar sap after a cold night; readers themselves may have noticed the sweet taste of potatoes that have been exposed to frost. In Britain, a frosty autumn with bright days also gives much brighter colours, while a wet autumn gives only dull yellows and browns.

Perhaps some readers will feel with Keats:

*Do not all charms fly
At the mere touch of cold philosophy?
There was an æwful rainbow once in heaven:
We know her woof, her texture; she is given
In the dull catalogue of common things.
Philosophy will clip an Angel's wings.*

Others may find an added beauty in these glimpses into the way in which nature achieves such spectacular effects.

ICI. NEWS

THE CHAIRMAN RECEIVES THE MESSEL MEDAL

THE Messel Medal for 1956 has been awarded to Sir Alexander Fleck. The presentation took place on 12th October. The medal, which was created in 1922, is the major award of the Society of Chemical Industry, and is given every two years to “one who has secured meritorious distinction in science, literature, industry or public affairs,



Sir Alexander Fleck receives the Messel Medal from the president of the Society of Chemical Industry, Mr. Julian M. Leonard

and who is prominently concerned with the welfare of the Society.” The role of recipients includes the names of Lord (then Sir Harry) McGowan in 1934 and Lord Waverley (then Sir John Anderson) in 1948.

Also in October Sir Alexander received the honorary degree of Doctor of Science of Oxford University.

OVERSEAS TRADE FAIRS COMMITTEE

Mr. W. J. Worboys, I.C.I. Commercial Director, has been appointed a member of the advisory committee on overseas trade fairs and exhibitions set up by the President of the Board of Trade.

Chairman of the committee is Mr. A. R. W. Low, Minister of State, Board of Trade; other members of the committee include Mr. W. B. Beard (general secretary of the United Pattern Makers' Association and chairman of the Trades Union Congress) and Sir Ernest Goodale (chairman of the British Industries Fair).

HEAD OFFICE

Mr. E. G. Lambert

The untimely death at the age of 59 of Mr. E. G. Lambert, the Company's Registrar from 1946 to 1956, came as a great shock to his many friends in the Company.

Mr. R. F. Pennell (I.C.I. Registrar 1926-46) writes:

My association with Mr. E. G. Lambert began in 1912, when he joined the Nobel-Dynamite Trust. Shortly afterwards he started work in the Registrar's Department of that company. On the voluntary winding up of that company in 1915 we both went to Nobel's Explosives Co. in Glasgow, and then in 1918 were back in London again taking charge of the Registrar's Department of Nobel Industries. Shortly after the formation of I.C.I. in 1926 Mr. Lambert was appointed Assistant Registrar, and on my retirement in March 1946 he was appointed Registrar of the Company.

Thus for 34 years we were in daily contact, and the more I saw of him the greater I valued his co-operation, his ability, and his friendship. No one could have had a more loyal colleague, no company a better servant or one who put more heart into his work. With him it seemed that the greater the demand, the greater the response, and in a manner that indicated his love of his work. Therefore I was delighted to learn on my retirement that the Company had appointed him Registrar.

Through all the years we worked in closest harmony, and the department gained much from his ability to grasp what was wanted and put into operation the steps necessary to attain it. As a result, his unexpected and early passing has been a great shock to me, and I am sure to all who really knew him.

Especially regrettable is the fact that in a short time he might have looked forward to enjoying a rest in retirement which, through his long and faithful service, he so richly deserved.

In his passing I have lost a good friend and the Company a valued member of its staff.

ALKALI DIVISION

First Retirement Dinner

About 230 employees due to retire and their wives or other close relatives were guests of the Division board at a dinner party held at Warrington on 19th October. The retirement dinner was the first of its kind to be held. A troupe of top-line variety artists, headed by Jimmy Edwards, provided the entertainment.

Welcoming the guests, the Division chairman, Mr. J. K. Batty, explained why the dinner was being held. Some time ago, he said, a suggestion had been made through the works councils that wives, or in the absence



"You there, in the back row!" Professor Edwards wakes them up at Winnington.

of a wife some other close relative, should be invited to presentations of long service awards. It had been found on investigation that this was not a practicable proposition. The Division board had therefore sought some alternative and had decided to give a send-off to those about to retire, and to invite wives to the function.

Knights of the Road

Two Winnington employees have been elected to the Order of Knights of the Road by the Mid-Cheshire Road



Mr. J. J. Armstrong receives the order of Knight of the Road from Councillor Miss Margaret Hassall. Mr. J. J. Carroll is second from the left.

Safety Committee in appreciation of their services as trainer/examiners in cycling proficiency for schoolchildren. They are Messrs. J. J. Carroll and J. J. Armstrong. With another trainer/examiner, Mr. R. V. Johnson, they were presented with their awards recently by



Mr. Armstrong operates the traffic signals in the school playground

the chairman of Northwich Urban Council (Councillor Miss Margaret Hassall, J.P.).

The three men, all keen cyclists themselves, have devoted much of their spare time this year to conducting courses in safe cycling for local schoolchildren, and subsequently testing them for the national certificate and the cycling proficiency badge. Courses and tests are carried out after school hours in the playground of the Weaverham/Wallerscote County Primary School, where lines are drawn to represent road junctions and model traffic robots and signs are used.

BILLINGHAM DIVISION

Billingham's Wheelwright

Using traditional tools bought before the first world war, 68-year-old Mr. Ralph Walker, of Commercial Works wagonshops, is Billingham's only wheelwright. He will



Mr. Walker adjusts the compass plane he uses for planing the inner and outer curves of wheel rims

probably also be the last of his kind in the factory. Few wheelwrights can be found anywhere now—and most modern handcarts and barrows have rubber-tyred metal wheels.

Mr. Walker repairs all the wooden-wheel handcarts and sack barrows in the factory—and one of his regrets is that it is becoming more and more difficult to find new wood such as he worked with as an apprentice. "I served my time with a cartwright and wheelwright who left oak for spokes outdoors for five years," Mr. Walker said, "and when it was properly weathered he would keep it indoors for another two years to dry."

Today Mr. Walker uses oak from the bottom frames of old rail wagons. "It's good stuff," he said; "dry as a bone, which is what you want for your wheel to be sound and true."

CENTRAL AGRICULTURAL CONTROL

New Guide for Gardeners

A new book by Mr. George Ordish of Central Agricultural Control on garden pests (*Garden Pests*; Rupert Hart-Davis, 9s. 6d.) will commend itself to the amateur gardener who is comparatively new to the game.

A contributor writes:

"If history repeats itself, then historians repeat each other"—or, in horticultural parlance, "Most gardening books are written one from another." No such criticism could be made of the present work, which really succeeds in telling gardeners how to tackle pests and diseases successfully.



Mr. George Ordish

Many amateurs are confused by the number of different troubles that may attack their plants. How can the various insect pests and fungus diseases be readily identified? Are expert knowledge and complicated, costly treatments unavoidable if troubles are to be averted or kept in check? The above and equally pertinent questions are clearly answered in this excellent work.

George Ordish has an easy, concise style of writing, with a refreshing absence of unnecessary scientific jargon. At the same time he is authoritative, accurate and up to date—and of how many gardening books can these claims be made?

I commend the very practical arrangement of the different chapters which makes it very easy to track down a particular trouble. Pests of flowers, fruit, vegetables, lawns, etc., are discussed separately with the appropriate chemical or other treatments. There are some excellent half-tone reproductions, mostly of photographs taken by the Plant Protection Film Unit.

DYESTUFFS DIVISION

Grangemouth Recover Cup

Three years ago the Glasgow Shipbuilders' Association presented a cup—known as the Glasgow University Cup—for a six-a-side competition among hockey clubs in Scotland, to be played at the beginning of each hockey season.

Against a very big entry Grangemouth Recreation



The victorious Grangemouth team

Club's team became the first holders of the cup in 1954. Although it slipped from their grasp last year, they have brought it back to Grangemouth again this season.

The Grangemouth team was not given a great chance before the competition by the national press, but they put up a magnificent show right through the tournament and are once again the proud holders of a very fine trophy.

Balloon lands in Norway

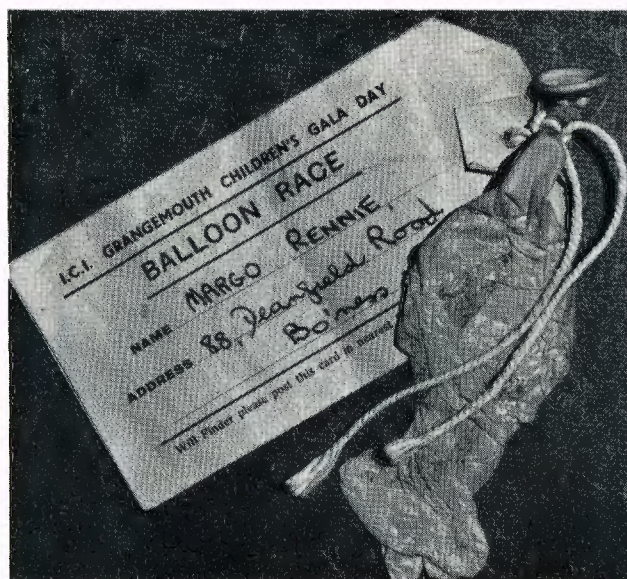
A popular feature of the children's Gala Day at Grangemouth is the balloon race, in which labelled balloons filled with hydrogen are released and a prize is given to the child whose balloon travels furthest.

On the day of the gala on 30th June conditions were ideal for this type of race, with a dry day and a fairly strong breeze. The winning balloon landed in the Orkney Islands, the prize was awarded, and the competition was wound up.

Three months later a letter reached Grangemouth from a Norwegian newspaper editor in which was enclosed a deflated balloon. The balloon, which had been sent off by Miss Margo Rennie during the gala, was



Miss Margo Rennie



The much-travelled balloon as it arrived back from Norway

picked up in Imsdalen, a valley in the mountains between Gudbrandsdalen and Østerdalen in Eastern Norway. Margo, whose father, Mr. Robert Rennie, is a first aid attendant in Grangemouth Labour Department, has been awarded an additional first prize.

METALS DIVISION

Calder Hall

Metals Division is well to the fore in its contribution to the peaceful uses of nuclear energy. The biggest contribution of non-ferrous metals to the condensing plant at the recently opened nuclear power plant at Calder Hall was made by this Division. In addition to 104 tons of Admiralty brass condenser tubes, I.C.I. has supplied C. A. Parsons & Co., makers of the turbo-generating plant, with all the plates (134 tons of naval brass) for both main and dump condensers.

PLASTICS DIVISION

Three Generations at Welwyn

Plastics Division is not so old that it can boast of long family associations within the Division. But it does have three generations of one family all working at Black Fan Road. They are 69-year-old Mr. A. N. While, his son Alfred and his grandson Eric.

Arthur While came to Welwyn from Billingham in 1938 and was employed as a shop fitter until September 1953, when he began his present job as storekeeper in the Engineering Workshops. He received a silver watch for long service in 1947 and hopes to qualify for a gold one next year.

Alfred While also commenced his career with I.C.I. at Billingham. That was in June 1930, when he was sixteen years old. After serving an apprenticeship he became a fitter and turner at the age of twenty-one. He was loaned



Three generations at Black Fan Road: Alfred A. While, Eric Newton While and Arthur Newton While

to Plastics Division for four months early in 1938 to help install plant machinery at Welwyn. Afterwards he was invited to return to Welwyn. Newly married, he came to stay in July 1938. He has been an estimating clerk at Hydeway Workshops for the past seven years.

Seventeen-year-old Eric Newton While—the grandson—is a laboratory assistant at Black Fan Road, specialising in scientific glassblowing.

The While family's association with Plastics Division does not end at that. Another member of the family, Mrs. Dorothy Ann Prior, was employed at Black Fan Road during the last war. Mrs. Prior is the daughter of Arthur While.

Forty Years of Scouting

Mr. Chris Howell, an instrument attendant at Plastics Works, Billingham, has recently completed 40 years with the Scout movement.

Assistant District Commissioner for Stockton since 1942 and holder of the movement's Medal of Merit, Mr. Howell joined the St. James's Group at Portrack in 1916, only eight years after the Scouts were founded by Lord Baden-Powell. He then served as a member of the 12th Stockton Group for two years and later took out his warrant as Group Scoutmaster of the 2nd Stockton Group. He then helped other groups in the district and in 1930 returned to his first group at St. James's Church as group scoutmaster. In 1940 he was made District Scoutmaster and awarded the Medal of Merit and two years later was appointed Assistant



Mr. C. Howell

District Commissioner. His wife has also had a long association with the Scout movement and is the District Badge Secretary.

WILTON WORKS

New Oil Cracker Started Up

The second olefine (oil-cracking) plant to be erected on the Wilton site by Billingham Division commenced production last month. Plans for its construction at a cost of £6m. were first announced by the Company in March 1954—three years after the successful start-up of the No. 1 Olefine Plant.

Like its predecessor, No. 2 Olefine Plant is broadly divided into three sections: the cracking section, which converts light hydrocarbon oils into a mixture of gases and crude motor spirit; the gas separation section; and a small section which refines the crude motor spirit which is piped to the Billingham factory for blending.

The separated gases are the raw materials for other chemical plants, which in turn provide the raw materials for the manufacture of polythene, 'Terylene' polyester fibre, 'Perspex,' glycol anti-freeze, and a variety of new organic chemicals.

The operation of No. 2 Olefine Plant provides permanent employment for about 180. When No. 3 Olefine Plant, recently announced by the Company, commences operations in 1959 the number employed in Olefine Works will have increased from 350 in 1955 to over 700.

With the start of No. 2 Plant output of olefines has been doubled, and when all three olefine plants are in production the total ethylene production will exceed 100,000 tons a year, together with an approximately equal amount of other olefines—propylene, butylenes and butadiene.

The construction of a second ethylene glycol plant is also announced. It will come into production early in 1959 at the same time as the third oil cracker, from which it will draw its ethylene. The combined capacity of the two ethylene glycol plants will be 16,000 tons a year. The main uses of ethylene glycol are for 'Terylene' fibre, motor car anti-freeze and explosives.

I.C.I. (CHINA)

Mr. W. C. Bowling Retires

Mr. W. C. Bowling, a director of I.C.I. (China) since 1953 and in sole charge of the Company's interests on the China mainland until the closing of the Shanghai office in the middle of this year, retired at the end of October.

Mr. Bowling joined Brunner, Mond & Co. in 1922. He was appointed divisional manager in Hankow in 1934 and in Tientsin in 1939. At the outbreak of the Pacific war he was dyestuffs sales manager in Shanghai.

Repatriated under a prisoner-of-war exchange, Mr. Bowling enlisted in the Indian Army. There he was one of a handful of men responsible for reorganising the Army's medical stores organisation and earned high praise from General Auchinleck.

After the war he returned to China to reopen the I.C.I. office in Tientsin. He became office manager at Shanghai in 1951 and two years later was appointed to the board of I.C.I. (China).

HOLIDAY ARTICLES

This year we had 44 entries for the Holiday Article competition, as against 52 last year and 52 the year before that. The winner is Mr. P. R. Ward of General Chemicals Division, Hillhouse Works. Last May he took a trip on a trawler—not everybody's idea of a holiday—but if you read Mr. Ward's story you may understand better why people choose to earn their living this hard way. There is something about this tough life which makes it for some people a welcome antidote to the sheltered living of modern civilisation.

The runner-up in the competition is Mr. W. C. McDowall of Nobel Division, Ardeer. He describes a day spent bathing at a small seaside village in Greece; and tells the tale very simply, but with a great sense of atmosphere. As with any good holiday article, it makes you want to go and do the same thing yourself, if only you could afford it!

★ ★ ★

OUR NEXT ISSUE

January 1957 will see a bigger *Magazine*—up by four pages. The four extra pages are being used to carry more pictures, both news pictures and colour pictures. So be sure not to miss the first of the 1957 bigger issues—the best values for 2d. in Britain today.

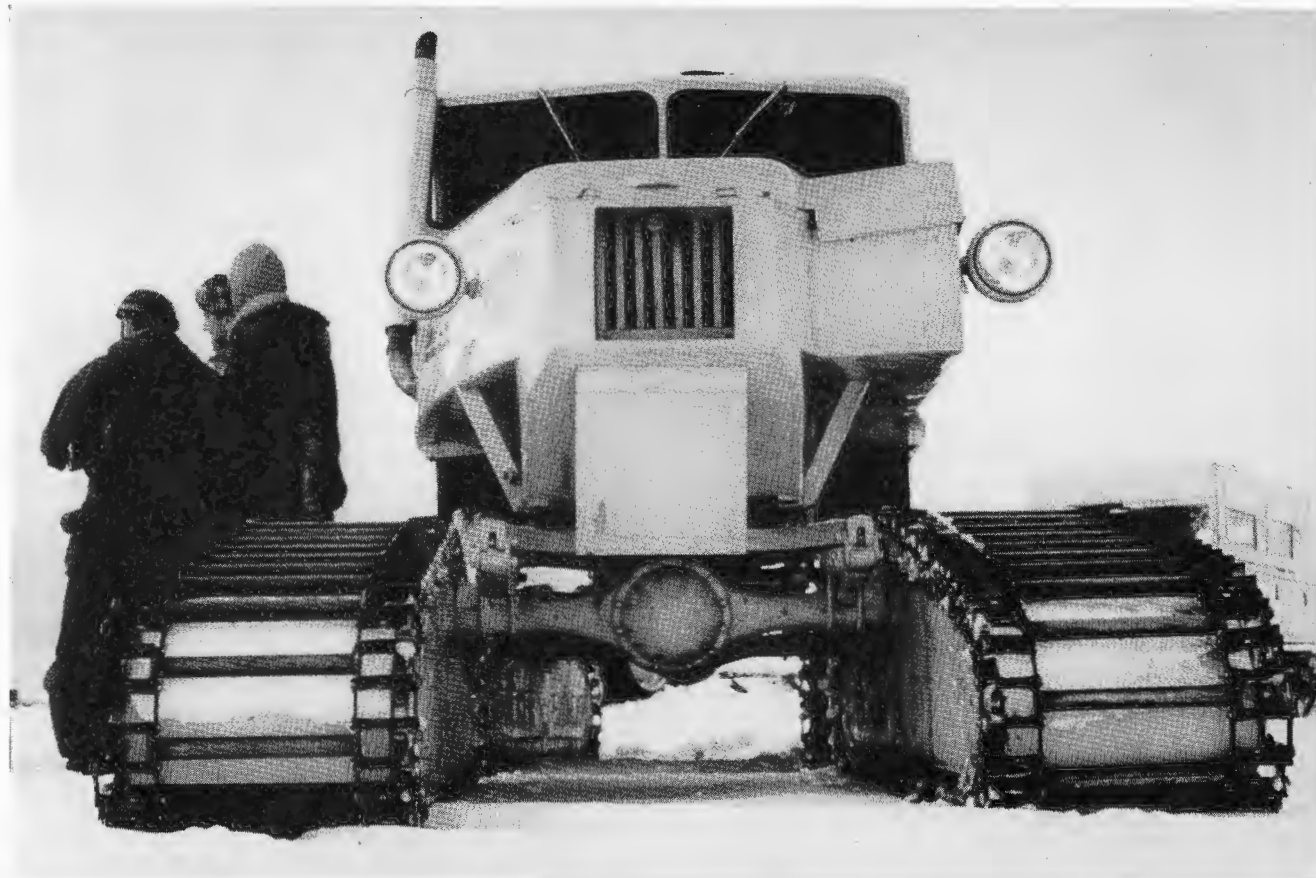
This issue will open with an article by one of our Deputy Chairmen, Mr. S. P. Chambers. He has written a piece specially for the *Magazine* on the theme "How We Run I.C.I." How is this huge concern, selling over £1m. of goods every day, made flexible, buoyant and progressive? How is it decentralised? How is a bottleneck avoided at the top? This article will tell you.

The colour feature is a travel one. It tells of a visit to the rose-red city of Petra, once a legendary city lost in the deserts of Jordan. There are some fine photographs of these magnificent ruins, many of them hewn out of rock. The ruins date from 500 B.C.

Two further features are both of a nautical flavour. There is a description of a trawler trip from Fleetwood (the article which won the holiday competition) and a rather brilliant sketch of a Clyde steamer character called Callum McLean.



NEWS IN PICTURES



Transantarctic Expedition. Flexible fuel tanks made by Marston Excelsior at Wolverhampton have been adapted for use in the expedition's four "Sno-Cat" tractors, as metal storage tanks tend to develop faults under such extreme conditions. Above: One of the "Sno-Cat" tractors photographed at Shackleton



Safety bonuses won by works sections paid for the modern club at Billingham's Heysham factory. The clubhouse was opened on 6th October by the Mayor of Morecambe and Heysham



Sir Alexander Fleck photographed above with Professor Niels Bohr, the Danish physicist (centre), and Lord Waverley (right) at the official opening of Calder Hall, Britain's first nuclear power station, on 17th October



First Clitheroe apprentice to complete his training, Peter Gidlow, receives indentures from Mr. B. Ellam (Works Engineer). Mr. D. M. Grudgings (Works Manager) is on the extreme right



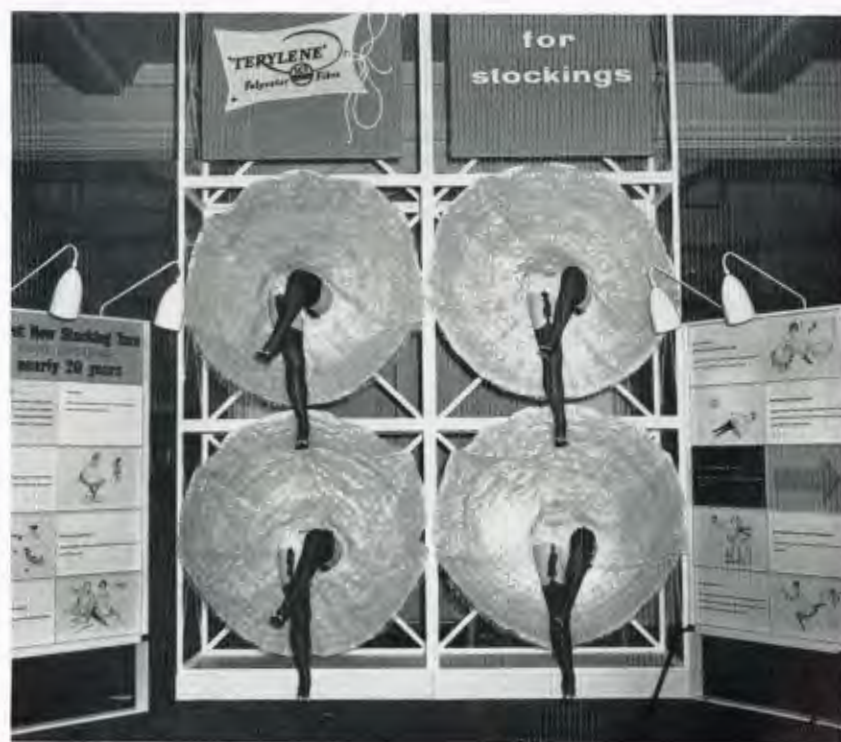
Old bell at Ardeer, cast in 1757 for Hounslow factory and Ardeer's invasion bell during last war, has been presented to Saltcoats and District Regional Museum. Above: Riggers R. Lawson and R. McDowall with the bell after it was taken down



Medical Officer at Leatherclóth Division's Newton Works, Dr. F. U. G. Penman, won the European championship for the International Snipe class held at Ostend in September



Central Avenue, which bisects the Wilton site from north to south, has been renamed Queen's Avenue to commemorate the visit of Her Majesty the Queen and the Duke of Edinburgh to the Wilton Works last June



Twenty-one brands of 'Terylene' stockings will shortly be on sale in the shops. Above: central exhibit at the Fibre Division's recent show to launch 'Terylene' as the latest stocking yarn. Legs of the can-can dancers were life-size and specially cast for the show. Left: a 'Terylene' woolworsted dress by Fath was one of the models by leading French couturiers at the fashion show in aid of the National Fund for Polio Research held in London



West Indian journalists visited Metals Division headquarters as part of an industrial tour of Britain. Metals Division at present employs about 100 Jamaicans



A death's head hawk moth, Britain's largest moth, was found on doorstep by Mr. A. Organ (Bristol Sales Office). The moth has been requested by Bristol City Museum



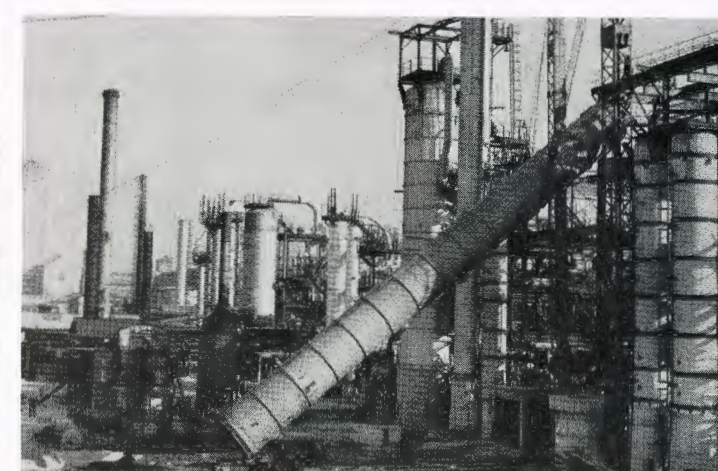
Suggestion Scheme. Mr. Ron Wells (right) receives £100 cheque from Dr. R. G. Heyes (Plastics Division Production Director) for modification to the U.F./W.F. Plant at Wilton



Scale model of the "Britannia" made by Mr. Harry Duckers, a canteen attendant at Billingham, took four years to build. Steam driven, it weighs 1½ cwt. and can pull a ton in weight



Four archers in the General Chemicals club's second annual championship. Mr. R. M. Dale (extreme right) won the Peter Reid Cup. (Photo: Runcorn Weekly News)



Giant distillation column for new carbonylation plant at Billingham Oil Works is hoisted into position. The column, which was delivered to the factory in one piece, is 90 ft. long and weighs 35 tons

Tea with the Sherpas

By Consuelo Linares Rivas

A chance encounter brought Consuelo Linares Rivas into contact with Nepal's two leading Sherpas, Pasang and Tenzing. It was an unusual meeting.

WE flew up from Calcutta in an Air India plane to the foot of the mighty Himalayan range—Indians in European clothes, Indians in dhoties (one of them had great difficulty in strapping on his safety belt, as he was sitting cross-legged in his seat), ordinary Europeans and, to make the picture complete, gum-chewing and loud-shirted Americans camera-loaded and friendly. But, as if this assorted medley was not colourful enough, we had as travelling companions a Sherpa and his wife. He was dressed in a European suit with a breastful of Mountaineering Club medals and also, for good measure, a Swiss Air badge. His wife wore Tibetan costume, complete with plastic handbag.

We touched down at a small airstrip called Balurghat, where some of our companions abandoned us and a friendly, silent, staring crowd watched us get out without a smile of amusement or even a spark of life in their faces. Then after another short flight we went by car over the mountains to Darjeeling.

The narrow road up the mountainside is spectacular. The background of the *meseta* is engulfed by the foreground of dense jungle which, as you ascend, melts away in the rarer air. The road is made even more hair-raising by that enchanting feat of engineering, the Darjeeling Railway. It crossed our path 132 times! At the very start we disturbed a troop of monkeys. Below us precipices yawned steeply as our old car coughed and spluttered its way up, its steering responding erratically to the slightest flick of the wrist.

We drove over the top at Ghoom and descended gently into Darjeeling, a charming Italian-like town

nestling in the skirt of the mountain. Another four miles further on brought us to the tea estate of our hosts, Mr. and Mrs. Henderson.

No sooner had we settled down to luncheon than the phone rang and Jill excused herself from the table. She returned after a few minutes to inform us that Pasang—the Sherpa we met on the plane—had invited us all to tea the following afternoon.

Pasang, who is also a Lama, is a well-built man in his mid-forties. He has been a guide since 1937 and is probably the leading Sherpa today. The Sherpa Tiger Badge was awarded to him after climbing 27,000 ft.

Mrs. Pasang is most attractive, with a lovely smile which stretches sweetly across her face. To us it seemed almost an everlasting smile, since, with Nepalese her only language, she spoke but rarely. A dark-skinned woman with long plaited black hair wound round her head (Nepalese women have to have the husband's consent before cutting their hair!), her agile and bright eyes darted from face to face as she listened to outlandish tongues. This gave her a quick, understanding look. But the outstanding thing about Mrs. Pasang was her grace of movement and delicate dignity. She comes from Lukla, a small village not far from Pasang's, 11,000 ft. up in the Nepalese foothills of the Himalayas.

Last year Pasang accompanied the Austrian expedition that conquered Cho Oyu. This was a most important achievement—doubly so, since he had promised Yang Tschén he would marry her if he got to the top. He succeeded and he married her; and as a wedding

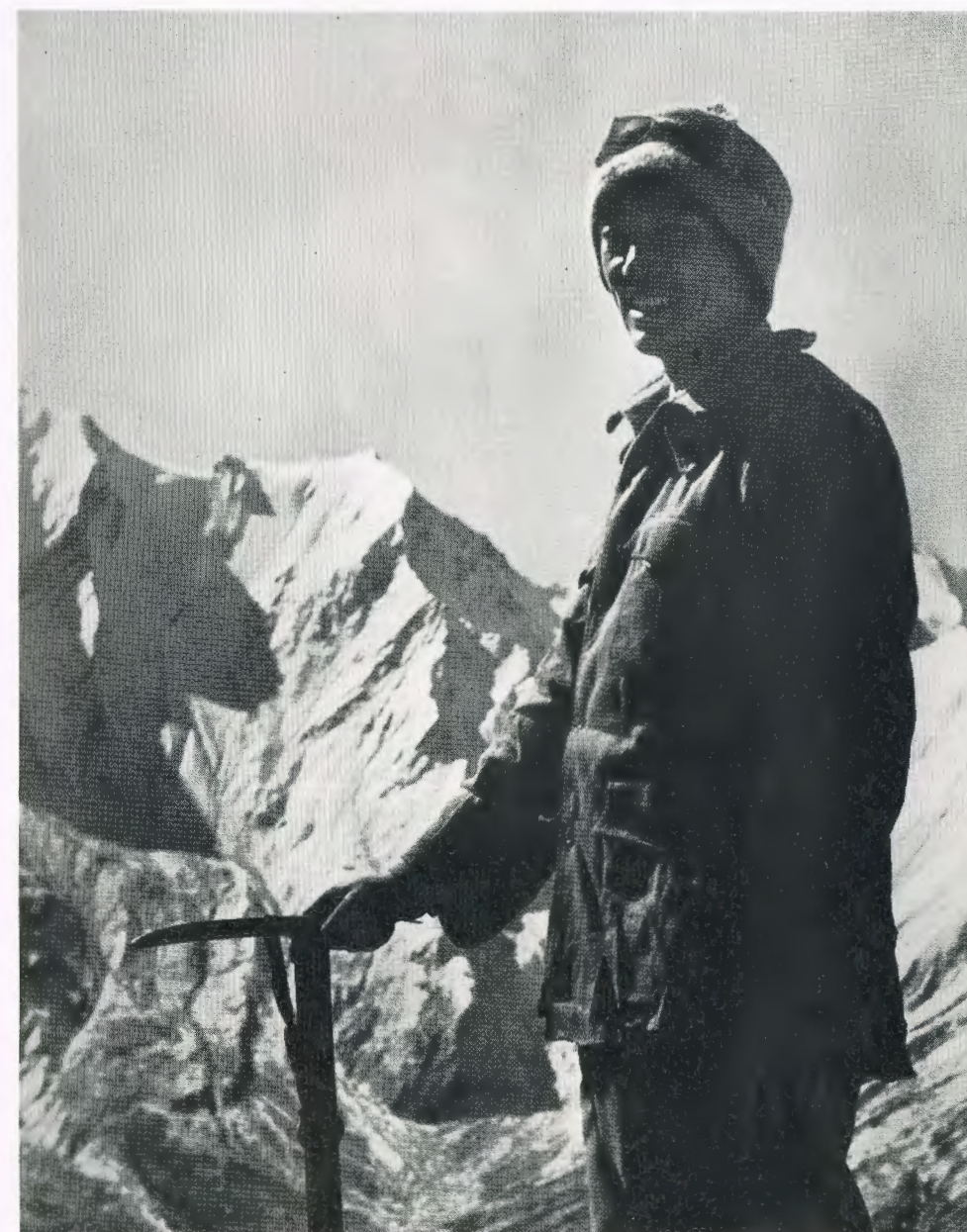
trip the Pasangs were invited by the expedition leader, Dr. Tichy, to visit Austria, Switzerland and Germany. It was on their return from this voyage that we met.

Tea was a typical sandwich and cake affair. It was an enchanting meal and the conversation rather extraordinary. After all, "*dekkho hai*" doesn't get you too far, does it? But somehow we managed to understand each other through some fast interpreting from the Hendersons, aided by some Cheshire cat smiles from an Englishman and his Spanish wife.

Soon rum, the Sherpa's drink, replaced the tea. Pasang poured out generous dollops into tall glasses, added sugar and topped it all with boiling water, making a dark brown liquid with a scent highly reminiscent of varnish. In no time at all the second round was being offered. We declined and the Hendersons did not want any more, but Pasang reminded them of the Sherpa tradition, "Two of everything"—so, like it or not, they had to have another.

We also called on Sherpa Tenzing Norkey at his big four-storey European-style house. The first two floors are occupied by his family, who moved in from the hills, the next storey is reserved for his fifteen Sherpa dogs (the sixteenth is allowed to live with the Tenzings), and on the top floor is their own place.

Tenzing is lithe and taller than the average Sherpa, with dark lank hair and a flashing smile; a very good-looking man. He was dressed in French rubber-soled



Sherpa Pasang Dawa Lama photographed 15,000 ft. up in the Garhwal Himalayas by Mr. B. R. Goodfellow, Head of India Department, who had just returned from an unsuccessful attempt in 1944 to scale a 21,000 ft. mountain

shoes, black and white Norwegian patterned socks, plus-fours and a dark green polo-neck sweater. We drank Nescafé together.

As we left the Tenzings, thanking them for their hospitality, we saw carved out of the rock by his house the notice:

Sherpa Tenzing receives visitors between 10 a.m. and 12 o'clock. Business visits can be arranged with the Secretary.



"Isn't Christmas shopping a bore!"

Photo by C. A. Scott (Alkali Division)